



NASA Science Program Support Office



2015 Annual Report

Delivering
NASA Science
Face-to-Face
to the World





Overview

The Year at a Glance

International Union of Forest Research Organization	October 8–11, 2014—Salt Lake City, UT
The Climate Symposium	October 13–17, 2014—Darmstadt, Germany
Geological Society of America	October 19–22, 2014—Vancouver, Canada
Symposium on Weather and Climate Extremes, Food Security, and Biodiversity	October 20–24, 2014—Fairfax, VA
International Union for Conservation of Nature, World Parks Congress	November 12–19, 2014—Sydney, Australia
20th Conference of Parties to the United Nations Framework Convention on Climate Change	December 1–14, 2014—Lima, Peru
American Geophysical Union Fall Meeting	December 15–19, 2014—San Francisco, CA
American Meteorological Society Annual Meeting	January 4–8, 2015—Phoenix, AZ
American Astronomical Society Winter Meeting	January 4–8, 2015—Seattle, WA
National Council for Science and the Environment National Conference	January 27–29, 2015—Crystal City, VA
SMAP Launch	January 29, 2015—Buellton, CA
American Association for the Advancement of Science Annual Meeting	February 12–16, 2015—San Jose, CA
Earth Day at Union Station and the National Mall	April 17–22, 2015—Washington, DC
Maryland Library Association Annual Meeting	May 6–8, 2015—Ocean City, MD
International Symposium on Remote Sensing of Environment	May 11–15, 2015—Berlin, Germany
Japan Geoscience Union Meeting	May 24–28, 2015—Chiba, Japan
World Science Festival	May 27–31, 2015—New York, NY
Air and Waste Management Association Annual Conference	June 22–25, 2015—Raleigh, NC
XXVI General Assembly of the International Union of Geodesy and Geophysics	June 22–July 2, 2015—Prague, Czech Republic
International Geoscience and Remote Sensing Symposium	July 26–31, 2015—Milan, Italy
Asia Oceania Geosciences Society Annual Meeting	August 2–7, 2015—Singapore
International Astronomical Union General Assembly	August 3–14, 2015—Honolulu, HI
American Chemical Society	August 16–20, 2015—Boston, MA
Explore NASA Goddard	September 26, 2015—Goddard Space Flight Center, Greenbelt, MD



Our Mission

We are the primary point-of-contact for NASA's Science Mission Directorate and Earth Science Division for science exhibit outreach and product development.

Our Vision

The Science Program Support Office strives to provide an inspiring and interactive venue, using a unique storytelling approach, that allows a variety of audiences worldwide to connect with NASA Science, offering:

- opportunities for individuals to engage face-to-face with NASA scientists, engineers, modelers, and outreach personnel alike (e.g., via dynamic scientific presentations and demonstrations);
- access to free and accurate scientific information related to a variety of interesting NASA missions, research topics, and scientific discoveries (e.g., science story booklets, mission brochures, *The Earth Observer* newsletter); and
- unique visual scientific perspectives by way of stunning imagery and other creative multimedia content.





Highlights of 2015

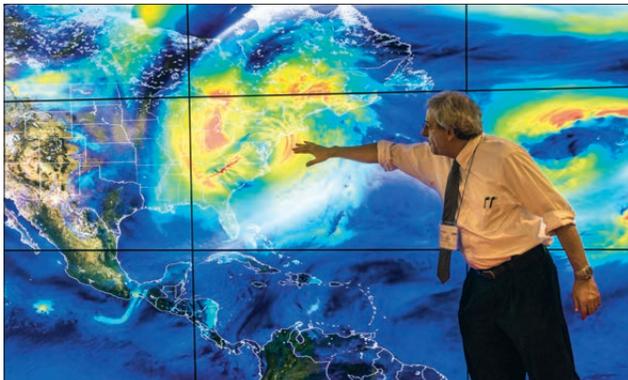
For more photos from our events, visit our Flickr page at www.flickr.com/photos/eospso/sets.



Earth Day 2015
Union Station, Washington, D.C.



Asia Oceania Geosciences Society (AOGS), 12th Annual Meeting
Tiong Bahru, Singapore



Japan Geoscience Union 2015 Meeting
Chiba, Japan



Maryland Library Association 2015 Annual Meeting
Ocean City, Maryland

International Astronomical Union XXIX General Assembly
Honolulu, Hawaii



American Geophysical Union (AGU) 2014
San Francisco, California

Celebrating 10 years at AGU as a "One NASA" booth!



Hyperwall Stories

This list includes stories that have been developed for the Hyperwall between October 2014 and September 2015. For a more complete list of Hyperwall presentations, go to svs.gsfc.nasa.gov/hw.

The Blue Marble from Apollo 17

The classic photograph of the Earth taken on December 7, 1972.
svs.gsfc.nasa.gov/goto?30613

El Niño Watch 2015

Side-by-side comparisons of Pacific Ocean sea surface height anomalies in 1997 (TOPEX/Poseidon) and 2015 (OSTM/Jason-2).
svs.gsfc.nasa.gov/goto?30629

EPIC View of Earth

First view of the entire sunlit side of Earth taken by DSCOVR's Earth Polychromatic Imaging Camera (EPIC).
svs.gsfc.nasa.gov/goto?30610

Soil Moisture Maps and Australian Rainfall

A series of images from SMAP satellite data showing soil moisture and flooding in Australia in April 2015.
svs.gsfc.nasa.gov/goto?30599

Global Biosphere, Yearly Cycle

Satellite instruments reveal the yearly cycle of plant life on the land and in the water.
svs.gsfc.nasa.gov/goto?30595

Urban Growth in Las Vegas

Landsat images show rapid urbanization of Las Vegas between 1984 and 2014.
svs.gsfc.nasa.gov/goto?30215

The Water Cycle

This diagram describes how water evaporates from the Earth's surface, rises into the atmosphere to form clouds, and falls again to the surface as precipitation.
svs.gsfc.nasa.gov/goto?30580

SMAP Launch and Deploy

NASA's first Earth-observing satellite mission designed to collect continuous global observations of surface soil moisture and freeze/thaw state.
svs.gsfc.nasa.gov/goto?30577

Atmospheric CO₂ Trends

Human activities are now increasing the atmospheric carbon dioxide abundance to unprecedented rates.
svs.gsfc.nasa.gov/goto?30556

ENSO Sea-Surface Temperature Anomalies, 2009–2010

The evolution of a sea-surface temperature anomaly associated with the 2009–2010 El Niño in the Pacific Ocean.
svs.gsfc.nasa.gov/goto?30550

ENSO Sea-Surface Temperature Anomalies, 1997–1998

This event was the first major El Niño that was observed extensively by satellites.
svs.gsfc.nasa.gov/goto?30551

Upsala Glacier Retreat in Argentina

Landsat images from 1986, 2001, and 2014 show the retreat of Upsala glacier.
svs.gsfc.nasa.gov/goto?30549

Montage of Early Data from Aura's Microwave Limb Sounder

Six simultaneous measurements made by MLS from August 13, 2004 to October 14, 2004.
svs.gsfc.nasa.gov/goto?30548

Ozone Watch: Status of the Ozone Layer Over the Antarctic

This series shows the recent status of the ozone layer over the Antarctic, with a focus on the ozone hole.
svs.gsfc.nasa.gov/goto?30078

Tesso Nilo National Park

Landsat imagery shows a loss of natural forest in the park area and surrounding forest-logging concessions.
svs.gsfc.nasa.gov/goto?30545

Galápagos Blooms After El Niño

SeaWiFS images show phytoplankton near the Galápagos after the 1997–1998 El Niño.
svs.gsfc.nasa.gov/goto?30543

California Drought

GRACE gravity data reveals water deficit in California, 2002–2013.
svs.gsfc.nasa.gov/goto?30521

Projected Suitable Habitats for Whitebark Pine

Projected changes in suitable habitats for whitebark pine from 2010–2099.
svs.gsfc.nasa.gov/goto?30555

Climate Change in Yellowstone

Projected changes in late spring temperatures for the U.S. from 1950–2100.
svs.gsfc.nasa.gov/goto?30554

The Antarctic Ozone Hole Will Recover

The graph shows each year's October average minimum over Antarctica.
svs.gsfc.nasa.gov/goto?30602



How Global Warming Stacks Up

These animations explore various natural and man-made factors to explain Earth's warming.

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OCO-2 Early Glint Retrievals Over Water

An animation comparing X_{CO_2} estimates from OCO-2 glint observations to those generated by GEOS-5.

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AXIOM-1 Sea-Surface Salinity, Sea-Ice Thickness, and Atmospheric Precipitable Water

This animation shows sea-surface salinity, sea-ice thickness, and atmospheric precipitable water from June 1 to November 1, 2014.

svs.gsfc.nasa.gov/goto?30583

AXIOM-1 Ocean Chlorophyll, Sea-Ice Thickness and Atmospheric Precipitable Water

This animation shows ocean surface chlorophyll concentration, sea-ice thickness, and atmospheric precipitable water.

svs.gsfc.nasa.gov/goto?30584

AXIOM-1 Sea-Surface Temperature

This animation shows sea-surface temperature, ice thickness, and atmospheric precipitable water.

svs.gsfc.nasa.gov/goto?30524

McMurdo Panorama

A 360° view of Mars from Mars rover Spirit from its "winter haven," April–October 2006.

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A Natural Bridge on the Moon

Lunar Reconnaissance Orbiter Camera image of a natural bridge on the moon.

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Camera on Curiosity's Arm as Seen by Camera on Mast

Mars rover Curiosity took this image of the Mars Hand Lens Imager on the rover's arm.

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Dawn Spacecraft's Farewell Portrait of Giant Asteroid Vesta

Simulated flight over Vesta created with images taken by Dawn's framing cameras, 2011–2012.

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Diversity in Vicinity of Curiosity's First Drilling Target

Image of the location called "John Klein," selected as Curiosity's first drilling site.

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Rock Outcrops on Mars and Earth

Images compare the Link outcrop of rocks on Mars with similar rocks seen on Earth.

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View into "John Klein" Drill Hole in Martian Mudstone

Mars rover Curiosity closeup image of the interior of the target rock, "John Klein."

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"Cumberland" Target Drilled by Curiosity

Mars rover Curiosity closeup image of the drill hole of the target rock, "Cumberland."

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Dust from Mars Drilling: Tailings and Discard Piles

The first holes into rock drilled by NASA's Mars rover Curiosity showing drill tailings.

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Martian Landscape with Rock Rows and Mount Sharp

Landscape photographed by NASA's Curiosity Mars rover.

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First Sampling Hole in Mount Sharp

A Mars rover Curiosity image shows the first sample-collection hole drilled in Mount Sharp.

svs.gsfc.nasa.gov/goto?30542

Loose Rock Leads to Incomplete Drilling

The "Bonanza King" rock on Mars was tapped by the drill belonging to NASA's Mars rover Curiosity.

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Curiosity Marches Onward and Upward

This image from NASA's Mars Curiosity rover shows the "Amargosa Valley," on the slopes leading up to Mount Sharp.

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Curiosity Self-Portrait at "Windjana" Drilling Site

Curiosity's self-portrait taken where the rover drilled into a sandstone target, called "Windjana."

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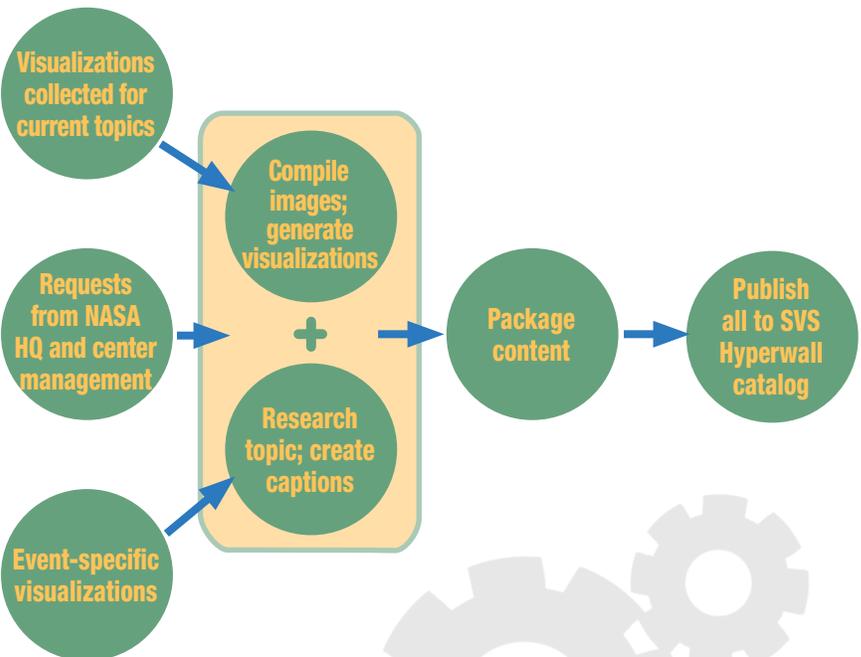


Hyperwall Content Development: How It's Done

NASA's Hyperwall continues to be among one of the most effective platforms used to communicate NASA Science by way of presentations given by scientists, guided docent tours, and stand-alone visuals accompanied by storytelling captions.

Our goal is to curate a collection of visualizations that explain NASA science. To do this, our Hyperwall team:

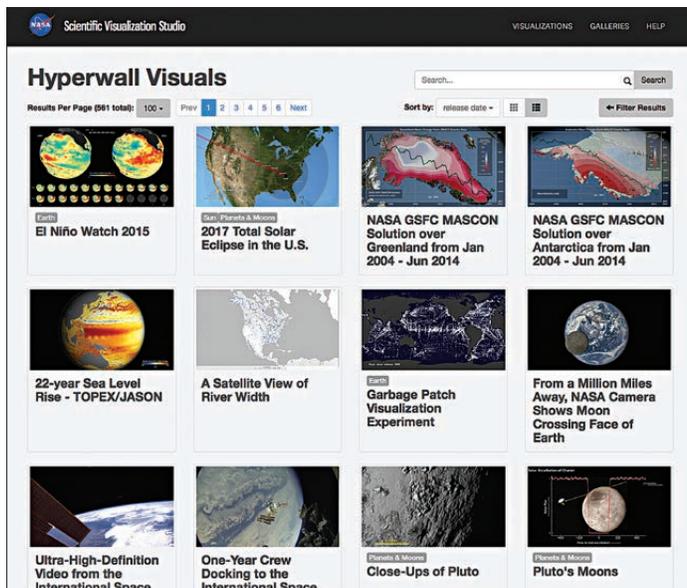
1. provides context to SVS content by adding storytelling captions;
2. finds and adds content from other centers/groups;
3. creates our own visualizations (to fill in gaps in topic coverage, to support events, or to respond in a timely manner to NASA news releases, etc.);
4. assembles playlists of visualization on various topics; and



5. retires outdated content from active use.

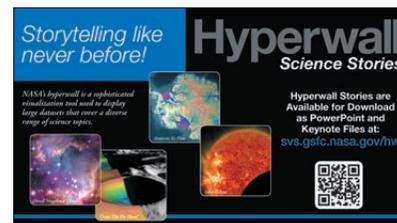
The office routinely works with program representatives, scientists, and outreach personnel to ensure a balanced portfolio of

Hyperwall content to seamlessly communicate information about all the agency's programs and scientific discoveries.



Online Hyperwall Catalog

To accommodate audience requests for user-friendly content, all Hyperwall stories are available for download at svs.gsfc.nasa.gov/hw. PowerPoint and Keynote files are available for some stories.



As a way to promote the online Hyperwall catalog, we use the nine screens to display announcement material along with a QR code that provides a direct link to the website.

Publications, Social Media, and More!



Printed publications, eBooks, and *The Earth Observer* newsletter archive can be found online at eosps.nasa.gov.



New! eBooks

iBooks Now Available!

Complete with full rich colors, vector art, and other multimedia elements, the eBooks include the following:

- Understanding Earth stories of science storybook, as well as a high-resolution, about recently launched Earth-observing mission.

Go to: eosps.nasa.gov/publications/9



iBooks Now Available

Follow us on **@NASAHyperwall**

DISCOVER THE SCIENCE STORIES OF **UNDERSTANDING EARTH**

The Journey of Dust The Icy Arctic Biodiversity & Ecological Forecasting

Scan #1 to enjoy reading the full story eosps.nasa.gov/publications/9

Hyperwall screens used during conferences. QR code supplies direct links.

Lenticular Cards



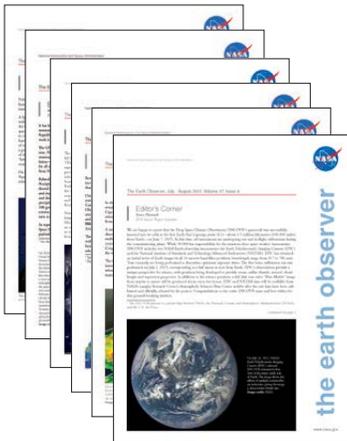
Mission Support



Event Support



The Earth Observer Newsletter



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"Our Planet Earth" Exhibit Dulles Airport



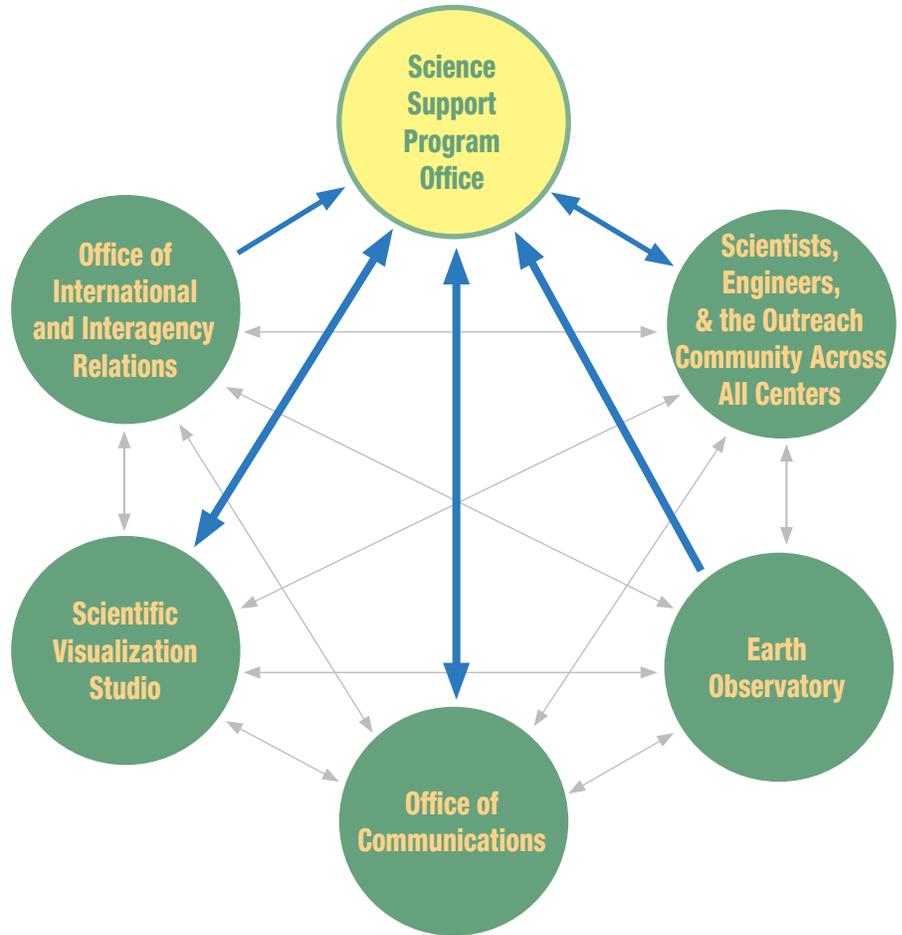


Partnerships

Collaboration Within NASA

Over the years the office has established several ongoing working relationships across NASA's Science Mission Directorate [see diagram at right]. These key partnerships allow the office to more effectively stay abreast of the latest science results, technology trends, and communication strategies (i.e., platforms). For example, the NASA-grown software used to run the Hyperwall is a direct result of our partnership with the Scientific Visualization Studio.

Other internal partnerships, such as those with the public affairs office and various program scientists, have directly led to the development of several thematic story booklets, mission brochures, science-informative posters, the NASA Science calendar, 3-D lenticular cards, among other products.



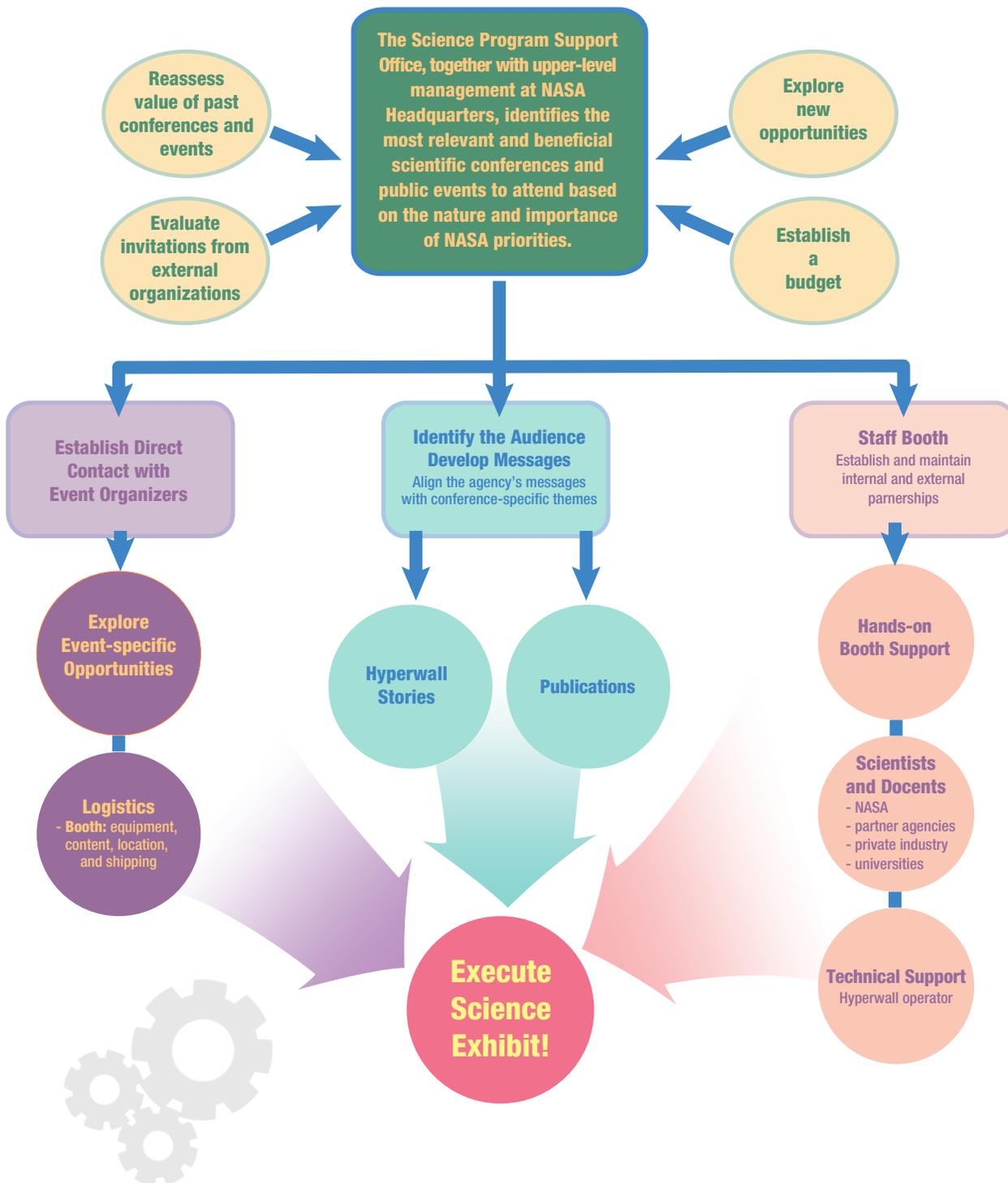
Collaboration Outside NASA

The office's extensive internal network and proven ability to bridge gaps across centers, missions, and programs provides the foundation and resource-base needed to strongly represent NASA at international and interagency venues. These events, along with several others, have helped to inspire and strengthen the agency's strategic partnerships. Key international and interagency partners include the United States Department of State, Japan Aerospace Exploration Agency, Group on Earth Observations, National Oceanic and Atmospheric Administration, Earth Day Network, Union Station, and various other universities and research institutions.

Conferences & Public Events



Event Planning





Who We Are

History of the Office

NASA's Science Program Support Office can trace its roots to the early days of the Earth Observing System (EOS) program. It was created to provide outreach support for the EOS Project Science Office, which was responsible for assisting Headquarters in developing and implementing the EOS program. In those days, information exchange wasn't as instantaneous as it is today; the Internet wasn't nearly as ubiquitous. The outreach staff, which at the time was only two people, found a niche for themselves: a vital communications link for the fledgling EOS community.

Today, the Science Program Support Office firmly stands on more than 20 years of unparalleled experience telling the story of NASA to the world and representing NASA and the United States as a world leader in scientific research, exploration, and discovery. This experience provides the foundation for a unique infrastructure that allows the office's staff to offer a suite of exhibit-support services including dynamic displays, access to free and accurate communication products, and inspiring experiences to tens of thousands of individuals across the globe.



1994–1998: Early NASA Exhibits. Early booths featured poster backdrops, computer displays, and many print products for distribution.



Early 2000s: Dynamic Planet. This was the first platform capable of projecting NASA visualizations in a spherical format.



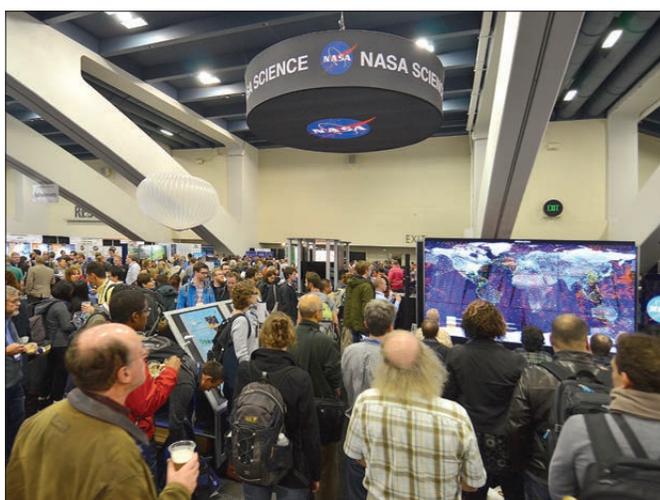
2005: One NASA. This exhibit, at the AGU Fall Meeting, was the first to unite all four NASA Science divisions together in one booth.



2008: Plasma Screen. First use was at the Home and Garden Show in Washington, DC.



2011: Hyperwall. One of the first uses was at the International Year of Chemistry kickoff event in Paris, France.



2014: Exhibit at 2014 Fall AGU. The NASA Science booth at AGU always draws a large crowd, as do others around the world, throughout the year.

Our Team

The Science Program Support Office staff offers a unique skill set that allows the group to plan, organize, develop, design, and deliver successful execution of small- and large-scale exhibit-support services and the several thousand communication products that have been developed and implemented over the years.

- Winnie Humberson *Team Lead*
- Steven Graham *Technical Lead*
- Alan Ward *Writing/Editing*
- Heather Hanson *Writing/Editing*
- Marit Jentoft-Nilsen *Data Visualization/Multimedia*
- Amy Moran *Data Visualization/Multimedia*
- Mark Malanoski *Exhibit Specialist/Multimedia*
- Ishon Prescott *Exhibit Specialist/Social Media*
- Sally Bensusen *Visual Information/Graphic Design*
- Deborah McLean *Visual Information/Graphic Design*
- Kevin Miller *Visual Information/Graphic Design*
- Cynthia Trapp *Administrative Coordinator*
- Ryan Barker *Logistics Coordinator*



Looking Ahead

Upcoming Events

The Science Program Support Office has identified a list of upcoming conferences and events to attend in the 2015–2016 time frame. These include:

- International Symposium on Digital Earth:
October 5–9, 2015
- Geological Society of America (GSA) Annual Meeting:
November 1–4, 2015
- GEO-XII Plenary and Ministerial Summit, Ministry of Foreign Affairs: November 9–13, 2015
- 21st Conference of Parties (COP-21): November 30–December 11, 2015
- American Geophysical Union (AGU) Fall Meeting:
December 14–18, 2015
- 227th Meeting of the American Astronomical Society (AAS):
January 4–8, 2016
- American Meteorological Society (AMS) Annual Meeting:
January 10–14, 2016
- 16th National Conference and Global Forum on Science, Policy and the Environment (NCSE): January 19–21, 2016
- American Association for the Advancement of Science (AAAS) Annual Meeting: February 11–15, 2016
- Ocean Sciences Meeting: February 21–26, 2016
- European Geosciences Union: April 17–22, 2016
- Earth Day at Union Station: April 2016
- Maryland Library Association Annual Conference: May 4–6, 2016
- Living Planet Symposium: May 9–13, 2016
- Japan Geoscience Union (JpGU) Meeting: May 22–26, 2016
- 228th AAS Summer Meeting: June 12–16, 2016
- 110th Air and Waste Management Association (A&WMA) Annual Conference: June 20–21, 2016
- American Library Association Annual Meeting:
June 23–28, 2016
- International Geoscience and Remote Sensing Symposium (IGARSS): June 26–July 1, 2016
- 13th Asia Oceania Geosciences Society (AOGS) Annual Meeting: July 31–August 5, 2016
- 252nd American Chemical Society (ACS) National Meeting and Exposition: August 21–25, 2016
- Geological Society of America (GSA) Annual Meeting:
September 25–28, 2016

To support these events, a variety of Hyperwall content and printed products will be designed and developed. The office, with help from senior-level management, will recruit several scientists and outreach personnel to present science stories on the Hyperwall. To perform both of these tasks (product development and Hyperwall development), the office will work with their many partners to align their messages with the agency's current efforts.

Long-term Goals

Looking ahead, the Science Program Support Office will continue seeking opportunities to:

- develop and implement next-generation communication platforms—i.e., implement new software capabilities and communication tools;
- highlight new science data and results from the latest missions, research topics, and programs;
- strengthen internal partnerships within NASA to ensure the delivery of the most cohesive, precise, up-to-date messages;
- maintain, strengthen, and reinvigorate existing partnerships (both internal and external) to ensure our delivery of clear information;
- broaden our outreach efforts; and
- connect with new audiences.

Summary



It is imperative that NASA and the United States continue to be represented at a variety of scientific venues as world leaders in and across the fields of Astrophysics, Planetary Science, Heliophysics, and Earth Science. Outreach exhibits allow the agency to represent the breadth and depth of NASA Science (as a whole) in a single setting and promote NASA's distinct roles in studying the global atmosphere, oceans and sea ice, land surfaces, ecosystems, the sun, other planets, the universe, and the interactions among these components.

The Science Program Support Office offers a unique and sustainable suite of NASA-grown exhibit-support services and capabilities.

Currently the Hyperwall provides a revolutionary platform for NASA to communicate its science face-to-face unlike any other space agency in the world—and, as we move toward the future, the office remains committed to implementing “next-generation” communication platforms as they become available.

The hope is that this office will continue to provide and strengthen visibility for the agency, inspiring a new generation and representing NASA as the leading research agency of the world.

